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(54) **Entertainment and data management system for passenger vehicle including individual seat interactive video terminals**

Unterhaltungs- und Datenverwaltungssystem für Passagierfahrzeug mit individuellem interaktiven Videoendgerät im Sitz

Système de divertissement et de gestion de données pour véhicule de transport de passagers comprenant des terminaux vidéo interactifs pour chaque place

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Description

The present invention relates to an interactive video terminal comprising a video display screen, an operation panel having a plurality of operation keys generating respective discrete electrical selection signals respectively when operated, and control means responsive to said selection signals from the panel for controlling the terminal to perform respective predetermined selectable operations corresponding thereto.

The invention relates further to an interactive data management system for a vehicle having a plurality of seats, comprising a plurality of remote video terminals mounted adjacent to respective seats, each video terminal including:

- a video display screen;
- an operation panel having a plurality of operation keys for generating respective discrete electrical selection signals when operated;
- communication means for transmitting data signals from the terminal; and
- control means responsive to said selection signals from the panel for controlling the communication means to transmit respective said data signals corresponding thereto; and

said interactive data management system further comprising central terminal means including:

- communication means for receiving said data signals from the terminals; and
- processing means for performing operations on said received data signals.

Such an interactive video terminal and such an interactive data management system are known from EP-A-0 277 014.

The present invention generally relates to video entertainment and data management systems for passenger vehicles such as aircraft, and more specifically to a system including individual video terminals provided at passenger seats for display of video programs and interactive system control.

Commercial airline companies are constantly striving to provide improved services for their customers. In-flight movies projected on a screen which is visible to all of the passengers in a particular section of an aircraft cabin are standard in the industry. However, the movies to be shown on each flight are selected by the airline company, and may not appeal to all of the passengers.

It is therefore desirable to provide each passenger with an individual means for viewing a movie of his or her choice. This capability is made possible by the development of small, flat-screen video monitors or terminals which can be provided at each passenger seat. The passengers may select the movies they wish to watch from a number of movies being supplied simultaneously

over a multiplexed video cable system. The terminals may also include video tape players (VTRs) which enable the passengers to select the movies they wish to watch from a library of video tapes available in the aircraft.

Various configurations of personal video monitors and players have been proposed as illustrated in an advertisement by the Airvision company in Air Transport World magazine, April 1990, page 99. These include monitors mounted in seatbacks, and on trays which fold down from the seatbacks. For front row seats with no seatbacks in front of them, the monitors may be rigidly mounted on the armrests or consoles between the seats. Monitors may also be attached to the ends of telescoping arms which extend upwardly from consoles or armrests.

The volume level, channel selection, tape play/stop and other rudimentary functions of these conventional video monitors and tape players are controlled by simple membrane switches located in the seat armrest console. This arrangement is inconvenient in that the control switches are located in a position remote from the monitors, and the passengers must locate the switches and manipulate them by feel while viewing the screen.

The conventional arrangement is also disadvantageous to construct since connecting cables must be provided between the control switches and monitors. This is especially problematic in an installation in which the monitors are mounted in the seatbacks of the forward seats, since the cables must extend between the seat in which the switches are provided and the forward seats.

Passenger services such as food and drink orders, on-board and mail-order sales, placing of telephone calls, etc. are conventionally provided manually by flight attendants. This is inefficient since the flight attendant must first go to each individual passenger seat to verbally determine the item or service the passenger requires, and then go to the passenger seats again to provide the item or service. In addition, payment for requested items, especially involving conversion between foreign currencies or the use of credit cards, is inefficient and time consuming. Further, EP-A-0 326 751 discloses a touch screen control panel apparatus wherein touch screen means are provided which include a touch screen overlay on display means, said touch screen means providing touch coordinate signals in accordance with operator touch on said touch screen overlay. The touch screen overlay comprises a capacitive touch screen.

WO-A-91/06160 discloses a telephone access video game distribution centre wherein a digital, interactive communication system is designed to provide a plurality of remote subscribers with one of a plurality of stored video games or like software packages through the use of a home computing assembly maintained within the subscribers' home and structured to display video as well as generated audio on a standard television receiver.

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Finally, EP-A-0 436 472 discloses a system for transmitting and receiving television signals. The television signals are coded in such a manner that they cannot be reproduced normally by normal television receivers. However, the coded television signals can be reproduced by receivers which are provided with special coders which can be activated by means of a suitable card.

In view of the above, it is the object of the invention to provide an improved interactive video terminal and to provide an improved interactive data management system.

This object is achieved by an interactive video terminal, mentioned at the outset, wherein the operation panel is a transparent touch panel overlying the screen and having a plurality of pressure sensitive areas for generating respective said discrete electrical selection signals when touched, and wherein the interactive video terminal further comprises:

- computing means for generating respective visual prompts corresponding to said predetermined selectable operations of the terminal for display on the screen underlying predetermined pressure sensitive areas of the panel;
- a movable housing for retaining said screen and panel;
- a fixed housing retaining said computing means;
- a pivotable swing arm extending from the fixed housing for supporting the movable housing;

and wherein the control means comprises:

- first processor means disposed in the movable housing for sensing said selection signals generated by the panel;
- second processor means disposed in the fixed housing for controlling the terminal to perform said operations in response to said selection signals sensed by the first processor means; and
- electrical connector means extending through the swing arm and interconnecting the first and second processor means.

The above object is further achieved by an interactive data management system, mentioned at the outset, wherein in the remote terminals the operation panel is a transparent touch panel overlying the screen and having a plurality of pressure sensitive areas for generating respective said discrete electrical selection signals when touched and wherein each video terminal further comprises computing means including prompt generating means for generating predetermined visual prompts corresponding to said data signals for display on the screen underlying predetermined pressure sensitive areas of the panel and data generating means for generating respective said data signals, and wherein each video terminal further comprises a movable housing for

retaining the screen and panel, a fixed housing retaining said computing means, and a pivotable swing arm extending from the fixed housing for supporting the movable housing, and wherein the control means comprises first processor means disposed in the movable housing for sensing said selection signals generated by the panel, second processor means disposed in the fixed housing for controlling the terminal to perform said operations in response to said selection signals sensed by the first processor means, and electrical connector means extending through the swing arm and interconnecting the first and second processor means.

In an interactive video entertainment and data management system embodying the present invention, a video terminal is provided in front of each passenger seat in an aircraft or other vehicle. Each terminal includes a video display screen which is mounted at the end of a pivotable swing arm extending from the armrest console of the seat.

A transparent touch panel overlies the screen and has a plurality of touch sensitive areas for generating discrete electrical selection signals when touched. A computing unit including a character generator displays visual prompts corresponding to passenger-selectable operations on the screen underlying predetermined pressure sensitive areas of the touch panel.

The operations may include selection of a multiplexed video channel for viewing, control of an individual video tape player, ordering of food, drinks and catalog merchandise and placing of telephone calls. Food and drink requests are displayed on a central terminal at the flight attendant's station. A credit card reader may be provided for automated payment for ordered items. An electronic control unit is responsive to the selection signals from the panel, and controls the video terminal to perform the operations corresponding thereto.

The present arrangement is advantageous in that the control switches are provided on the video terminal or monitor itself, and very easy to manipulate compared to the prior art. No connecting cables between remote switches and monitors are required.

Interactive ordering of food, drinks and on-board sales items greatly increases the cabin management efficiency since the flight attendants do not have to go to the passenger seats to obtain requests verbally. Ordering of catalog items, payments by credit card and placing of telephone calls are entirely free of flight attendant participation.

These and other features and advantages of the present invention will be apparent to those skilled in the art from the following detailed description, taken together with the accompanying drawings, in which like reference numerals refer to like parts.

FIG. 1 is a simplified block diagram of an embodiment of an interactive video entertainment and data management system useful for understanding the present invention including individual interactive

seat video terminals;

FIG. 2 is a front elevational view of a terminal of the system of FIG. 1;

FIG. 3 is a simplified side elevational view illustrating an exemplary layout of components in the terminal of FIG. 2;

FIG. 4 is a diagram illustrating the layout of a touch panel of the terminal of FIG. 2;

FIG. 5 is a more detailed block diagram of the system of FIG. 1;

FIG. 6 is a perspective view of a terminal of an embodiment of an interactive video entertainment and data management system of the present invention; and

FIG. 7 is a block diagram of the system of FIG. 6.

Referring to FIGs. 1 to 3 of the drawing, an interactive video entertainment and data management system for a passenger vehicle such as an aircraft is generally designated as 10, and includes a central terminal 12 and a plurality of remote video terminals 14. Although only one terminal 14 is illustrated, a plurality of terminals 14 are provided in the system 10, with one terminal 14 being mounted forward of each passenger seat. As shown in FIG. 2, the illustrated terminal 14 includes a housing 15 mounted in a seatback 16 so as to be comfortably viewable by a passenger in the seat immediately behind the seatback 16. For front row seats, the terminal 14 is mounted in a bulkhead forward of the seat.

The central terminal 12 includes an entertainment section 12a for generating a multiplexed video/audio signal including a plurality of movie channels. Although not specifically illustrated, the section 12a typically includes a plurality of VTRs for playing different movies respectively and a multiplexer for multiplexing the channels and feeding the resulting signal to the terminals 14 via a line 18. The central terminal 12 also includes a data section 12b for polling the terminals 14 for data, and receiving the data therefrom over a line 20. The central terminal 12 may further include a radiotelephone transceiver unit 12c for enabling passengers to place overseas telephone calls from the aircraft.

The details of the central terminal 12 and lines 18 and 20 per se are not the particular subject matter of the present invention. A central terminal and interconnecting lines suitable for practicing the invention are commercially available from Hughes-Avicom International (HAI) of Glendora, CA. Although not illustrated in detail, the data section 12b generally includes a mainframe class computer capable of multi-user, multi-tasking operation and downloading of data received from the terminals 14 to an external facility for processing. The data section 12b communicates with the terminals 14 using a local area network (LAN) such as the Ampro "Arcnet" system. In this case, the line 20 is constituted by a twisted conductor pair, and the individual seat terminals 14 are sequentially polled for data from the central terminal 12 using a "token ring" communications protocol.

Each remote terminal 14 includes a video display screen 22 such as a flat liquid crystal display (LCD) panel. A commercially available display screen 22 suitable for application in the present system 10 is the Sharp TFT-LCD module no. LQ4NC01. A transparent touch panel 24 is mounted closely adjacent to and overlying the screen 22 as illustrated in FIG. 3.

The touch panel 24 has a plurality of touch sensitive areas which produce discrete electrical selection signals when touched. A suitable touch panel 24 which is commercially available from Transparent Devices, Inc. of Westlake Village, CA has, as illustrated in FIG. 4, 16 touch sensitive areas arranged in rows R1 to R4 and columns C1 to C4. Each touch sensitive area is designated by a row and column coordinate.

As illustrated in FIG. 1, each terminal 14 includes an electronic control unit 28 which controls a text generator 30 to generate and display the visual prompts on the screen 22. It will be noted that the text generator 30 may be replaced within the scope of the invention by a character generator which generates visual prompts in the form of icons or the like, although not specifically illustrated. A commercially available text generator 30 suitable for use in the system 10 is the Fujitsu Display Controller LSI no. MB88324A.

The multiplexed video/audio movie channel signal is received over the line 18 by a tuner 32, which tunes to a selected channel, feeds the channel video signal to the screen 22 via the text generator 30 and feeds the channel audio signal to a headphone 34 via a jack 35. The channel to be viewed is selected by the passenger using the touch panel 24. The selection signals are read from the panel 24 by the control unit 28, and applied to control the tuner 32 to tune to the selected channel. The tuner 32 may preferably include a Motorola PLL Tuning Circuit with 1.3 GHz Prescaler no. MC4485002, which controls a voltage controlled oscillator (VCO) in a local oscillator circuit (not shown) of the tuner 32 in response to digital signals from the control unit 28.

Each terminal 14 may further include a credit card reader 36 to enable passengers to pay for ordered or requested items using credit cards. A card reader which is suitable for use in the system 10 is commercially available from Magtek of Carson, CA as the Magtek Card Reader MT-211.

The control unit 28 preferably includes a microcomputer (not shown) such as the Dallas Semiconductor Soft Microcontroller no. DS5000, which uses the 8051 instruction set. The DS5000 includes a central processing unit, random access memory (RAM), input/output (I/O) ports, a software download capability and numerous additional features in a single package. During power-up of the system 10, the software program required to control the terminals 14 is downloaded from the central terminal 12 into the program RAM of the DS5000 in each terminal 14.

FIGs. 2 and 4 illustrate exemplary visual prompts of a multi-level menu system displayed on the screen 22

underlying predetermined touch sensitive areas of the panel 24. The prompt "ENTERTAINMENT" underlies row R1, columns C1 to C4. The prompt "FOOD/DRINK SELECT" underlies row R2, columns C1 to C4. The prompt "ON-BOARD SALES" underlies row R3, columns C1 and C2 whereas the prompt "TELEPHONE" underlies row R3, columns C3 and C4.

The screen 22 underlies rows R1 to R3 of the panel 24, with the prompts in these areas being displayed on the screen 22. A mask 26 is fixed overlying row R4 of the panel 24. The prompts "ON/OFF", "CLEAR", "<< (backspace)" and "ENTER" are printed on the mask 26 overlying columns C1, C2, C3 and C4 of row R4 respectively.

The control unit 28, under control of the software program, feeds digital codes to the text generator 30, which generates text or icon characters constituting the visual prompts and feeds them to the screen 22 in the proper video format for display. The text generator 30 is controllable by the control unit 28 to display only a video movie from the tuner 32, only text, or text superimposed on a video movie on the screen 22 depending on the selected control function. The software program further includes a loop which continuously scans the touch panel 24 and card reader 36, and controls the terminal 14 to perform operations in response to the selection signals generated upon touching of corresponding touch sensitive areas of the panel 24 by the passenger.

An example of a multi-level menu structure provided by the software in the control unit 28 for display of prompts on the screen will now be described. If the screen 22 is initially turned off, touching any area on the panel 24 will cause the screen 22 to be turned on and display the main menu illustrated in FIGs. 2 and 4.

Touching any column in row R1 of the panel 24 will cause the main menu to be replaced by progressively lower level menus which enable selection of a movie channel or a language. The control unit 28 controls the tuner 32 to tune to the selected video channel and audio subcarrier in accordance with the selection signals from the panel 24.

Food and drinks may be ordered or requested by touching any column in row R2, which will cause display of progressively lower level menus including lists of selections. Where the requested item is an alcoholic beverage or other item which requires payment, the lower level menus will include prompts which enable selection of the type of payment method and currency. For payment by credit card, a prompt will be displayed to instruct the passenger to swipe a credit card through the reader 36. Data corresponding to the requested food or drink is generated and transmitted by the control unit 28 to the central terminal 12, and displayed on a monitor (not shown) for servicing by the flight attendants.

Touching of column C1 or C2 of row R3 causes lower level menus to be displayed which enable selection of on-board or mail-order items for purchase. Typically, a pamphlet will be provided to each passenger listing

the items for sale by numbers. Lower level menus enable input of the numbers corresponding to selected items, method of payment and, for mail-order items, the shipping address.

A cluster of numbers, letters etc. may be displayed in one touch sensitive area in a low level menu. Touching the area will cause display of a lower level menu in which each number is displayed in a separate touch sensitive area. For example, the low level menu may display a cluster including the characters "ABCDEFGH" in one area, whereas touching the area causes the cluster to be exploded such that each character "A,B,C,D,E,F,G" is displayed in a separate respective touch sensitive area in the lower level menu. This enables a large number of characters to be input using a small number of touch sensitive areas.

An outgoing telephone call can be placed by touching column C3 or C4 in row R3. Lower level menus including prompts for the telephone number and payment method will be progressively displayed, in addition to prompts indicating the status of the call. The headphones 34 include a microphone as well as speakers to enable telephone communications. Each terminal 14 further includes an audio selector 38 which is controlled by the control unit 28 to connect the headphones 34 to the telephone unit 12c through a telephone cable 40 when the telephone function is selected.

The terminal 14 is illustrated in more detail in FIG. 5, and includes a digital processor 42 which is preferably embodied by the Dallas DS5000 Soft Microcontroller described above. The processor 42 communicates with the data section 12b of the central terminal 12 over the line 20 via an Arcnet LAN interface unit 44. The terminals 14 are operated as slave units and are sequentially polled from the central terminal 12 using the Arcnet token ring protocol.

Although not specifically illustrated, the menu system also enables selection of "BRIGHTNESS", "CONTRAST", "COLOR", "VOLUME" and "HEADSET BALANCE" prompts for adjustment of the corresponding display and sound attributes. When one of these prompts is displayed, touching an up or down arrow prompt displayed on the screen 22 causes the displayed attribute to be varied in the respective direction. The display tint can be adjusted in a similar manner.

Although not shown in detail, the touch panel 24 includes four enable lines and four read lines which are connected to the processor 42 through buffers 56 and 58 respectively. The processor 42 controls the tuner 32 via a serial I²C bus 60, and is interfaced to the bus 60 by an I²C interface 62 such as the Philips I²C-Bus Controller no. PCD8584. The processor 42 also controls the brightness, contrast, color and tint of the display on the screen 22 over the I²C bus 60 via digital-to-analog converters (DACs) 64, 66, 68 and 70 respectively. Eight of these DACs are commercially available in a single package as the Philips Octuple 6-bit DAC with I²C bus no. TDA8444. The card reader 36 is connected to the proc-

essor 42 by a buffer 71.

The terminal 14 further includes a synchronization separator 72 which is preferably embodied by the National Semiconductor Video Sync Separator no. LM1881. The tuner 32 has a synchronization signal output which is connected to the separator 72. When a video signal is output from the tuner 32, the separator 72 generates and feeds vertical and horizontal synchronization (sync) pulses to the text generator 30 for superposition of text prompts on a movie, and feeds vertical sync pulses to the processor 42.

The presence of vertical sync pulses indicates to the processor 42 that a video signal is present. In response, the processor 42 controls the text generator 30 to utilize the sync signals from the separator 72. When a video signal is not present, such as while text prompts are being displayed on the screen 22 for ordering food, drinks, etc., the processor 42 does not receive vertical sync pulses from the separator 72, and controls the text generator 30 to generate sync pulses internally for display of the text prompts.

The terminal 14 may provide additional functions such as displaying a video game which can be played using a remote module such as the Nintendo Super NES (not shown). A connector 74 is illustrated in FIG. 2 which enables the game module to be connected to the terminal 14 by a modular telephone cable or the like. The terminal 14 may also display movie previews, weather maps, flight status, connecting flight and other information generated by the central terminal 12.

The terminal 14 also preferably includes an auxiliary processor 73 as embodied by the Ampro CoreModule Xt Processor Board. The processor 73 provides an intelligent interface between the interface unit 44 and the processor 42, and includes 256K bytes of non-volatile memory for the storage of system programs, credit card sales information and other data.

The processor 73 also enables video display of weather maps, airport diagrams and other computer-generated color graphics images. A color graphics adaptor (CGA) interface unit 74 as embodied by the Ampro MiniModule CGA Board converts data from the processor 73 into CGA composite video. A multiplexer 75 is controlled by the processor 42 to select either the video from the text generator 30 or the CGA video from the interface 74 for display on the screen 22.

Passenger aircraft often have first class sections which provide enhanced services above those of coach, business class, etc. In such an aircraft, the terminals 14 may be provided in the lower class sections, and terminals 80 illustrated in FIGs. 6 and 7 provided in the first class section. Each terminal 80 includes a fixed housing 82 which is detachably mounted in an armrest console 84 of a first-class passenger seat. A personal VTR player 86 is provided in the fixed housing 82 for playing of a movie recorded on a video cassette tape 88 from a library available on the aircraft. It will be understood that a player which reproduces entertainment recorded on

other video storage media such as video discs, may be substituted for the VTR player within the scope of the invention.

A movable housing 90 is supported at the end of a pivotable swing arm 92, and is movable from a viewing position as illustrated in the direction of an arrow 93 to a stowed position inside a cavity 82a of the housing 82. The terminal 80 further includes elements which are common to the terminal 14, and are designated by the same reference numerals. As viewed in FIG. 6, the display screen 22 is retained in the movable housing 90, with the touch panel 24 overlying the screen 22. The magnetic card reader 36 is located below the screen 22 and panel 24. The mechanical details of the terminal 80 are disclosed in US-A-5 179 447, published January 12th, 1993, entitled "PERSONAL VIDEO PLAYER AND MONITOR ASSEMBLY FOR AIRLINE PASSENGER SEAT CONSOLE", by Lani R. Lain.

As viewed in FIG. 7, a control unit 94 includes a first digital processor 95, preferably a Dallas DS5000, which is retained in the movable housing 90 and programmed to poll the touch panel 24 and card reader 36 for inputs, and to control the display attributes of the screen 22. Rather than using the I²C bus 60, the processor 95 controls the brightness, contrast, color and tint of the screen 22 via digital potentiometers 96, 98, 100 and 102 respectively which are preferably embodied by the Xicor E² POT no. X9104.

The processor 95 communicates with a similar processor 104 provided in the fixed housing 82 via a serial communication line 106 which extends from the movable housing 90 through the swing arm 92 to the fixed housing 82. Serial interfaces 108 and 110 are provided to interface the processors 95 and 104 respectively to the line 106. The processor 95 operates in slave mode, and is periodically polled by the processor 104 for data read from the touch panel 24 and card reader 36 and stored in RAM in the processor 95. The processor 104 operates as a slave unit to the data section 12b of the central terminal 12 in the manner described above relating to the processor 42.

The processor 104 controls the VTR 86 through a buffer 112. The terminal 80 further includes a multiplexer 114 which is controlled by the processor 104 to switch between the video/audio signals from the tuner 32 and the VTR 86 as selected by the passenger using the touch panel 24.

Preferably, the auxiliary processor 73 is provided as an intelligent interface between the processor 104 and LAN interface unit 44. The interface unit 74 generates CGA graphics which can be applied through the multiplexer 75 for display on the screen 22. In this case, the multiplexer 75 is controlled by the processor 104 to select the output of the text generator 30 or the CGA interface 74.

While several illustrative embodiments of the invention have been shown and described, numerous variations and alternate embodiments will occur to those

skilled in the art. For example, the terminals 80 with the VTRs 86 omitted may be provided for front row seats in the lower class sections rather than mounting the terminals 14 in the bulkheads.

Just to summarize, a video monitor or terminal 14, 80 is provided in front of each passenger seat in an aircraft or other vehicle. Each terminal 14, 80 includes a video display screen 22 which may be mounted in a seatback 16 or bulkhead facing the respective seat, or at the end of a pivotable swing arm 92 extending from the armrest console 84 of the seat. A transparent touch panel 24 overlies the screen 22 and has a plurality of touch sensitive areas for generating discrete electrical selection signals when touched. A computing unit including a text generator 30 displays visual prompts corresponding to passenger-selectable operations on the screen 22 underlying predetermined pressure sensitive areas of the touch panel 24. The operations may include selection of a multiplexed video channel for viewing, control of an individual video tape player 86, ordering of food, drinks and catalog merchandise and placing of telephone calls. A credit card reader 36 may be provided for payment for ordered items. An electronic control unit 28, 94 is responsive to the selection signals from the panel 22, and controls the video terminal 14, 80 to perform the operations corresponding thereto.

Claims

1. An interactive video terminal comprising:

a video display screen (22);
an operation panel (24) having a plurality of operation keys for generating respective discrete electrical selection signals when operated;
control means (28, 94) responsive to said selection signals from the panel (24) for controlling the terminal (14, 80) to perform respective predetermined selectable operations corresponding thereto,

characterized by

the operation panel being a transparent touch panel (24) overlying the screen (22) and having a plurality of pressure sensitive areas (R/C) for generating respective said discrete electrical selection signals when touched;
computing means (30) for generating respective visual prompts corresponding to said predetermined selectable operations of the terminal (14, 80) for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24);
a movable housing (90) for retaining said screen (22) and panel (24);
a fixed housing (82) retaining said computing

means (30);
a pivotable swing arm (92) extending from the fixed housing (82) for supporting the movable housing (90);

wherein the control means (28, 94) comprises:

first processor means (95) disposed in the movable housing (90) for sensing said selection signals generated by the panel (24);
second processor means (104) disposed in the fixed housing (82) for controlling the terminal to perform said operations in response to said selection signals sensed by the first processor means (95); and
electrical connector means (106) extending through the swing arm (92) and interconnecting the first and second processor means (95, 104).

2. The terminal of claim 1, characterized in that :

the computing means (30) comprises means (30) for generating said prompts in the form of a multi-level menu structure;
the control means (28, 94) comprises means (75) for controlling the terminal (14, 80) to perform said operations in response to respective combinations of a selected menu level and said selection signals.

3. The terminal of claim 1 or claim 2, characterized by tuner means (32) in said fixed housing (82) for receiving a multiplexed video signal including a plurality of video channels and tuning to a selected channel for display on the screen (22), wherein

the computing means (30) comprises means (30) for generating predetermined prompts corresponding to said channels for display on the screen underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and
the control means (28, 94) comprises means (75) for controlling the terminal to terminate display of said prompts and display said selected channel from the tuner means (32) on the screen (22) in response to a selection signal generated by the panel (24) corresponding to said selected channel.

4. The terminal of any of claims 1 - 3, characterized by video player means (86) in said fixed housing (82) for generating video program signals corresponding to a program recorded on a video storage medium (88) for display on the screen (22), wherein

the computing means (30) further comprises

means for generating predetermined prompts corresponding to selectable operations of the video player means (86) for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and

the second processor means (104) controls the video player means (86) to perform said operations in response to respective said selection signals corresponding thereto respectively.

5. The terminal of claims 3 and 4, characterized in that:

the computing means (30) further comprises means for generating predetermined prompts corresponding to the tuner means (32) and the video player means (86) for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and

the second processor means (104) comprises means (75, 114) for controlling the terminal (22) to display a selected channel from the tuner means (32) or the program signals from the video player means (86) in response to respective said selection signals corresponding thereto.

6. The terminal of any of claims 1 - 5, characterized by communication means (44) in said fixed housing (82) for transmitting data signals from the terminal (14, 80), wherein

the computing means (30) comprises:

prompt generating means (30) for generating predetermined prompts corresponding to selectable data signals for external transmission for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and data generating means (42, 95) for generating said data signals; and the control means (28, 94) comprises means (73) for controlling the communication means (44) to transmit said data signals in response to respective said selection signals corresponding thereto.

7. The terminal of claim 6, characterized in that:

the prompt generating means (30) comprises means (30) for generating said prompts as corresponding to items which can be selectably requested; and

the data generating means (42, 95) comprises means for generating said data signals as corresponding to said requested items.

8. The terminal of claim 7, characterized by card read-

er means (36) in said movable housing (90) for reading card data from a card inserted therein for payment for said requested items, wherein

the prompt generating means (30) comprises means for generating a prompt instructing insertion of the card into the card reader means (36); and

the communication means (44) comprises means for transmitting said card data together with said data signals corresponding to said requested items.

9. The terminal of any of claims 1 - 8, characterized by telephone transceiver means in said fixed housing (82) (38), wherein

the computing means (30) further comprises means for generating predetermined prompts corresponding to selectable operations of the telephone transceiver means (38) for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and

the control means (28, 94) comprises means for controlling the telephone transceiver means (38) to perform said operations in response to respective said selection signals corresponding thereto.

10. The terminal of any of claims 1 - 9, characterized in that the fixed housing (82) is formed with a cavity (82a), the movable housing (90) and swing arm (92) being movable between a viewing position external to the fixed housing (82) and a stowed position inside the cavity (82a) of the fixed housing (82).

11. The terminal of any of claims 1 - 10, characterized in that the computing means (30) comprises character generator means (30) disposed in the fixed housing (82) and controlled by the second processor means (104).

12. The terminal of claim 11, characterized by tuner means (32) disposed in the fixed housing (82) for receiving a multiplexed video signal including a plurality of video channels and tuning to a selected channel for display on the screen (22), wherein

the computing means (30) comprises character generator means (30) for generating predetermined prompts corresponding to said channels for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and the second processor means (104) comprises means for controlling the terminal to terminate display of said prompts and display said select-

ed channel from the tuner means (32) on the screen (22) in response to a selection signal generated by the panel (24) corresponding to said selected channel.

13. The terminal of any of claims 1 to 3, or 5 to 12 when not dependent on claim 4, characterized by video player means (86) disposed in the fixed housing (82) for generating video program signals corresponding to a program recorded on a video storage medium (88) for display on the screen (22), wherein

the computing means (30) further comprises character generator means for generating predetermined prompts corresponding to selectable operations of the video player means (86) for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and the second processor means (104) comprises means for controlling the video player means (86) to perform said operations in response to respective said selection signals corresponding thereto.

14. The terminal of claim 13, characterized in that:

the character generator means (30) further comprises means for generating predetermined prompts corresponding to the tuner means (32) and the video player means (86) for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and the second processor means (104) comprises means (114) for controlling the terminal to display a selected channel from the tuner means (32) or the program signals from the video player means (86) in response to respective said selection signals corresponding thereto.

15. The terminal of any of claims 1 - 14, characterized in that:

the character generator means (30) comprises means for generating prompts corresponding to items which can be selectably requested; the second processor means (104) comprises means for generating data signals corresponding to said requested items; the terminal (80) further comprises card reader means (36) disposed in the movable housing (90) for reading card data from a card inserted therein for payment for said requested items; the character generator means (30) further comprises means for generating a prompt instructing insertion of the card into the card reader means (36); and

the first processor means (95) comprises means for receiving said card data read from the card reader means (36) in response to insertion of the card therein.

16. An interactive data management system (10) for a vehicle having a plurality of seats, comprising:

a plurality of remote video terminals (14, 80) mounted adjacent to respective seats, each video terminal (14, 80) including:
a video display screen (22);
an operation panel (24) having a plurality of operation keys for generating respective discrete electrical selection signals when operated;
communication means (44) for transmitting data signals from the terminal (14, 80);
control means (28, 94) responsive to said selection signals from the panel (24) for controlling the communication means (44) to transmit respective said data signals corresponding thereto; and

central terminal means (12) including:

communication means (12b) for receiving said data signals from the terminals (14, 80); and
processing means (12a, 12c) for performing operations on said received data signals,

characterized by, in the remote terminals,

the operation panel being a transparent touch panel (24) overlying the screen (22) and having a plurality of pressure sensitive areas (R/C) for generating respective said discrete electrical selection signals when touched;
computing means (30) including prompt generating means for generating predetermined visual prompts corresponding to said data signals for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) and data generating means (42, 95) for generating respective said data signals;
a movable housing (90) for retaining the screen (22) and panel (24);
a fixed housing (82) retaining said computing means (30);
a pivotable swing arm (92) extending from the fixed housing (82) for supporting the movable housing (90);

wherein the control means (28, 94) comprises:

first processor means (95) disposed in the movable housing (90) for sensing said selection signals generated by the panel (24);
second processor means (104) disposed in the

fixed housing (82) for controlling the terminal to perform said operations in response to said selection signals sensed by the first processor means (95); and
 electrical connector means (106) extending through the swing arm (92) and interconnecting the first and second processor means (95, 104).

17. The system of claim 16, characterized in that:

said prompt generating means (30) in each remote terminal comprises means for generating said prompts as corresponding to items which can be selectably requested; and
 said data generating means (42, 95) in each remote terminal comprises means for generating said data signals as corresponding to said requested items.

18. The system of claim 17, characterized in that:

said video terminal (14, 80) in each remote terminal further comprising card reader means (36) in said movable housing (90) for reading card data from a card inserted therein for payment for said requested items;
 said prompt generating means (30) in each remote terminal comprises means for generating a prompt instructing insertion of the card into the card reader means (36); and
 said communication means (44) in each remote terminal comprises means for transmitting said card data together with said data signals corresponding to respective said requested items to the central terminal means (12).

19. The system of any of claims 16 - 18, characterized in that:

the central terminal means (12) further includes means (12a) for generating a multiplexed video signal including a plurality of video channels;
 each remote video terminal (14, 80) includes tuner means (32) in said fixed housing (82) for receiving the multiplexed video signal and tuning to a selected channel for display on the screen (22);
 said prompt generating means (30) in each remote terminal comprises means for generating predetermined prompts corresponding to said channels for display on the screen (22) underlying respective predetermined pressure sensitive areas (R/C) of the panel (24); and
 the control means (28, 94) in each remote terminal comprises means for controlling the respective terminal (14, 80) to terminate display of said prompts and display said selected chan-

nel from the respective tuner means (32) on the respective screen (22) in response to a selection signal generated by the respective panel (24) corresponding to said selected channel.

20. The system of any of claims 16 - 19, characterized in that:

said video terminal (14, 80) in each remote terminal further comprises video player means (86) in said fixed housing (82) for generating video program signals corresponding to a program recorded on a video storage medium (88) for display on the screen (22), wherein
 said computing means (30) in each remote terminal further comprises means for generating predetermined prompts corresponding to selectable operations of the respective video player means (86) for display on the respective screen (22) underlying predetermined pressure sensitive areas (R/C) of the respective panel (24); and
 said control means (28, 94) in each remote terminal controls the respective video player means (86) to perform said operations in response to respective said selection signals corresponding thereto.

21. The system of claim 20, characterized in that:

said computing means (30) in each remote terminal further comprises means for generating predetermined prompts corresponding to the respective tuner means (32) and the respective video player means (86) for display on the respective screen (22) underlying predetermined pressure sensitive areas (R/C) of the respective panel (24); and
 said control means (28, 94) in each remote terminal comprises means (114) for controlling the respective terminal to display a selected channel from the respective tuner means (32) or the program signals from the respective video player means (86) in response to respective said selection signals corresponding thereto.

Patentansprüche

1. Interaktives Videoterminal mit:

einem Video-Anzeigeschirm (22);
 einem Bedienfeld (24) mit einer Vielzahl von Bedientasten zum Erzeugen von jeweiligen diskreten elektrischen Auswahlsignalen, wenn die Bedientasten betätigt werden;
 Steuermitteln (28, 94), die auf die Auswahlsignale von dem Feld (24) zum Steuern des Ter-

minals (14, 80) ansprechen, um in Entsprechung hierzu jeweilige vorbestimmte auswählbare Operationen durchzuführen,

dadurch gekennzeichnet, daß

das Bedienfeld ein transparentes Berührungsfeld (24) ist, das über dem Schirm (22) liegt und eine Vielzahl von druckempfindlichen Bereichen (R/C) zum Erzeugen der jeweiligen diskreten elektrischen Auswahlsignale aufweist, wenn die druckempfindlichen Bereiche (R/C) berührt werden;

Berechnungsmittel (30) vorgesehen sind zum Erzeugen von jeweiligen visuellen Prompts entsprechend den vorbestimmten auswählbaren Operationen des Terminals (14, 80) zur Anzeige auf dem Schirm (22), und zwar in einer Lage unterhalb der vorbestimmten druckempfindlichen Bereiche (R/C) des Feldes (24);

ein bewegliches Gehäuse (90) vorgesehen ist zum Halten des Schirms (22) und des Feldes (24);

ein feststehendes Gehäuse (82) vorgesehen ist, das die Berechnungsmittel (30) hält;

ein schwenkbarer Schwenkarm (92) vorgesehen ist, der sich von dem feststehenden Gehäuse (82) zum Abstützen des beweglichen Gehäuses (90) erstreckt;

wobei die Steuermittel (28, 94) aufweisen:

erste Prozessormittel (95), die in dem beweglichen Gehäuse (90) angeordnet sind zum Erfassen der von dem Feld (24) erzeugten Auswahlsignale;

zweite Prozessormittel (104), die in dem feststehenden Gehäuse (82) vorgesehen sind zum Steuern des Terminals, um die Operationen in Antwort auf die von den ersten Prozessormitteln (95) erfaßten Auswahlsignale durchzuführen; und

elektrische Verbindungsmittel (106), die sich durch den Schwenkarm (92) erstrecken und die ersten und die zweiten Prozessormittel (95, 104) verbinden.

2. Terminal nach Anspruch 1, dadurch gekennzeichnet, daß:

die Berechnungsmittel (30) Mittel (30) aufweisen zum Erzeugen der Prompts in der Form einer mehrstufigen Menüstruktur;

die Steuermittel (28, 94) Mittel (75) zum Steuern des Terminals (14, 80) aufweisen, um die Operationen in Antwort auf jeweilige Kombinationen einer ausgewählten Menüstufe und der Auswahlsignale durchzuführen.

3. Terminal nach Anspruch 1 oder Anspruch 2, gekennzeichnet durch Tuner-Mittel (32) in dem feststehenden Gehäuse (82) zum Empfangen eines gemultiplexten Videosignals mit einer Vielzahl von Videokanälen und zum Abstimmen auf einen ausgewählten Kanal zur Anzeige auf dem Schirm (22), wobei

die Berechnungsmittel (30) Mittel (30) zum Erzeugen vorbestimmter Prompts entsprechend den Kanälen zur Anzeige auf dem Schirm aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und

die Steuermittel (28, 94) Mittel (75) zum Steuern des Terminals aufweisen, um die Anzeige der Prompts zu beenden und den ausgewählten Kanal von den Tuner-Mitteln (32) auf dem Schirm (22) anzuzeigen, und zwar in Antwort auf ein von dem Feld (24) erzeugtes Auswahlsignal entsprechend dem ausgewählten Kanal.

4. Terminal nach einem der Ansprüche 1 - 3, gekennzeichnet durch Video-Abspielmittel (86) in dem feststehenden Gehäuse (82) zum Erzeugen von Video-programmsignalen entsprechend einem auf einem Videoaufzeichnungsmedium (88) aufgezeichneten Programm zur Anzeige auf dem Schirm (22), wobei

die Berechnungsmittel (30) weiterhin Mittel zum Erzeugen vorbestimmter Prompts entsprechend ausgewählten Operationen der Videoabspielmittel (86) zur Anzeige auf dem Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und die zweiten Prozessormittel (104) die Videoabspielmittel (86) steuern, um die Operationen in Antwort auf jeweilige der Auswahlsignale durchzuführen, die diesen jeweils entsprechen.

5. Terminal nach Anspruch 3 und 4, dadurch gekennzeichnet, daß:

die Berechnungsmittel (30) weiterhin Mittel zum Erzeugen vorbestimmter Prompts entsprechend den Tuner-Mitteln (32) und den Videoabspielmitteln (86) zur Anzeige auf dem Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und die zweiten Prozessormittel (104) Mittel (75, 114) zum Steuern des Terminals (22) aufweisen, um einen ausgewählten Kanal von den Tuner-Mitteln (32) oder die Programmsignale von den Videoabspielmitteln (86) in Antwort auf jeweilige der Auswahlsignale anzuzeigen, die diesen entsprechen.

6. Terminal nach einem der Ansprüche 1 - 5, gekennzeichnet durch Kommunikationsmittel (44) in dem feststehenden Gehäuse (82) zum Übertragen von Datensignalen von dem Terminal (14, 80), wobei

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die Berechnungsmittel (30) aufweisen:

Prompt-Erzeugungsmittel (30) zum Erzeugen jeweiliger Prompts entsprechend auswählbaren Datensignalen zur externen Übertragung zur Anzeige auf dem Schirm (22), und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und Daten-Erzeugungsmittel (42, 95) zum Erzeugen der Datensignale; und

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die Steuermittel (28, 94) Mittel (73) zum Steuern der Kommunikationsmittel (44) aufweisen, um die Datensignale in Antwort auf jeweilige der Auswahlssignale zu übertragen, die diesen entsprechen.

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7. Terminal nach Anspruch 6, dadurch gekennzeichnet, daß:

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die Prompt-Erzeugungsmittel (30) Mittel (30) zum Erzeugen der Prompts aufweist, derart, daß diese Gegenständen entsprechen, die auswählbar angefordert werden können; und die Daten-Erzeugungsmittel (42, 95) Mittel zum Erzeugen der Datensignale aufweisen, derart, daß diese den angeforderten Gegenständen entsprechen.

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8. Terminal nach Anspruch 7, gekennzeichnet durch Kartenlesermittel (36) in dem beweglichen Gehäuse (90) zum Lesen von Kartendaten von einer hierin eingeführten Karte zur Bezahlung der angeforderten Gegenstände, wobei

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die Prompt-Erzeugungsmittel (30) Mittel zum Erzeugen eines Prompts aufweisen, der das Einführen der Karte in die Kartenlesermittel (36) anweist; und

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die Kommunikationsmittel (44) Mittel zum Übertragen der Kartendaten zusammen mit den Datensignalen entsprechend den angeforderten Gegenständen aufweisen.

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9. Terminal nach einem der Ansprüche 1 - 8, gekennzeichnet durch Telefon-Transceivermittel (38) in dem feststehenden Gehäuse (82), wobei

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die Berechnungsmittel (30) weiterhin Mittel zum Erzeugen jeweiliger Prompts entsprechend auswählbaren Operationen der Telefon-Transceivermittel (38) zur Anzeige auf dem

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Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und die Steuermittel (28, 94) Mittel zum Steuern der Telefon-Transceivermittel (38) aufweisen, um die Operationen in Antwort auf jeweilige der Auswahlssignale durchzuführen, die diesen entsprechen.

10. Terminal nach einem der Ansprüche 1 - 9, dadurch gekennzeichnet, daß das feststehende Gehäuse (82) mit einem Hohlraum (82a) ausgebildet ist, daß das bewegliche Gehäuse (90) und der Schwenkarm (92) zwischen einer Betrachtungsposition außerhalb des feststehenden Gehäuses (82) und einer verstaute Position im Inneren des Hohlraumes (82a) des feststehenden Gehäuses (82) bewegbar sind.

11. Terminal nach einem der Ansprüche 1 - 10, dadurch gekennzeichnet, daß die Berechnungsmittel (30) Zeichengeneratormittel (30) aufweisen, die in dem feststehenden Gehäuse (82) angeordnet sind und von den zweiten Prozessormitteln (104) gesteuert werden.

12. Terminal nach Anspruch 11, gekennzeichnet durch Tuner-Mittel (32), die in dem feststehenden Gehäuse (82) angeordnet sind zum Empfangen eines gemultiplexten Videosignals mit einer Vielzahl von Videokanälen und zum Abstimmen auf einen ausgewählten Kanal zur Anzeige auf dem Schirm (22), wobei

die Berechnungsmittel (30) Zeichengeneratormittel (30) zum Erzeugen jeweiliger Prompts entsprechend der Kanäle zur Anzeige auf dem Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und die zweiten Prozessormittel (104) Mittel zum Steuern des Terminals aufweisen, um die Anzeige der Prompts zu beenden und den ausgewählten Kanal von den Tuner-Mitteln (32) auf dem Schirm (22) anzuzeigen, und zwar in Antwort auf ein von dem Feld (24) entsprechend dem ausgewählten Kanal erzeugtes Auswahlssignal.

13. Terminal nach einem der Ansprüche 1 - 3 oder 5 - 12, soweit nicht von Anspruch 4 abhängig, gekennzeichnet durch Videoabspielmittel (86), die in dem feststehenden Gehäuse (82) angeordnet sind zum Erzeugen von Videoprogrammsignalen entsprechend einem auf einem Videoaufzeichnungsmedium (88) aufgezeichneten Programm zur Anzeige auf dem Schirm (22), wobei

- die Berechnungsmittel (30) weiterhin Zeichengeneratormittel zum Erzeugen vorbestimmter Prompts entsprechend ausgewählten Operationen der Videoabspielmittel (86) zur Anzeige auf dem Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und
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 die zweiten Prozessormittel (104) Mittel zum Steuern der Videoabspielmittel (86) aufweisen, um die Operationen in Antwort auf jeweilige der Auswahlsignale durchzuführen, die diesen entsprechen.
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14. Terminal nach Anspruch 13, dadurch gekennzeichnet, daß:
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 die Zeichengeneratormittel (30) weiterhin Mittel zum Erzeugen vorbestimmter Prompts entsprechend den Tuner-Mitteln (32) und den Videoabspielmitteln (86) zur Anzeige auf dem Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24); und
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 die zweiten Prozessormittel (104) Mittel (114) zum Steuern des Terminals aufweisen, um einen ausgewählten Kanal von den Tuner-Mitteln (32) oder die Programmsignale von den Videoabspielmitteln (86) in Antwort auf jeweilige der Auswahlsignale anzuzeigen, die diesen entsprechen.
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15. Terminal nach einem der Ansprüche 1 - 14, dadurch gekennzeichnet, daß:
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 die Zeichengeneratormittel (30) Mittel zum Erzeugen von Prompts aufweisen, die Gegenständen entsprechen, die auswählbar angefordert werden können;
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 die zweiten Prozessormittel (104) Mittel zum Erzeugen von Datensignalen entsprechend den angeforderten Gegenständen aufweisen; das Terminal (80) weiterhin Kartenlesermittel (86) aufweist, die in dem beweglichen Gehäuse (90) angeordnet sind, um Kartendaten von einer hierin zur Bezahlung der angeforderten Gegenstände eingeführten Karte zu lesen;
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 die Zeichengeneratormittel (30) weiterhin Mittel zum Erzeugen eines Prompts aufweisen, der das Einführen der Karte in die Kartenlesermittel (36) anweist, und
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 die ersten Prozessormittel (95) Mittel zum Empfangen der von den Kartenlesermitteln (36) in Antwort auf das Einführen der Karte in die Kartenlesermittel gelesenen Kartendaten aufweist.
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16. Interaktives Datenmanagementsystem (10) für ein Fahrzeug mit einer Vielzahl von Sitzen, mit:
 einer Vielzahl von entfernt liegenden Videoterminals (14, 80), die benachbart zu jeweiligen Sitzen montiert sind, wobei jedes Videoterminal (14, 80) aufweist:
 einen Videoanzeigeschirm (22);
 ein Bedienfeld (24) mit einer Vielzahl von Bedientasten, die dazu dienen, bei ihrer Betätigung jeweilige diskrete elektrische Auswahlsignale zu erzeugen;
 Kommunikationsmittel (44) zum Senden von Signalen von dem Terminal (14, 80);
 Steuermittel (28, 94), die auf die Auswahlsignale von dem Feld (24) ansprechen, um die Kommunikationsmittel (44) so zu steuern, daß diese jeweilige der Datensignale übertragen, die diesen entsprechen; und
 zentralen Terminalmitteln (12), die aufweisen:
 Kommunikationsmittel (12b) zum Empfangen der Datensignale von den Terminals (14, 80); und
 Verarbeitungsmittel (12a, 12c) zum Durchführen von Operationen an den empfangenden Datensignalen,
 dadurch gekennzeichnet, daß in den entfernt liegenden Terminals
 das Bedienfeld ein transparentes Berührungsfeld (24) ist, das über dem Schirm (22) liegt und eine Vielzahl von druckempfindlichen Bereichen (R/C) aufweist, die dazu dienen, bei Berührung jeweilige der diskreten elektrischen Auswahlsignale zu erzeugen;
 Berechnungsmittel (30) vorgesehen sind mit Prompt-Erzeugungsmitteln zum Erzeugen von vorbestimmten visuellen Prompts entsprechend den Datensignalen zur Anzeige auf dem Schirm (22), und zwar in einer Lage unterhalb vorbestimmter druckempfindlicher Bereiche (R/C) des Feldes (24), und mit Daten-Erzeugungsmitteln (42, 95) zum Erzeugen jeweiliger der Datensignale;
 ein bewegliches Gehäuse (90) vorgesehen ist zum Halten des Schirms (22) und des Feldes (24);
 ein feststehendes Gehäuse (82) vorgesehen ist zum Halten der Berechnungsmittel (30);
 ein schwenkbarer Schwenkarm (92) vorgesehen ist, der sich von dem feststehenden Gehäuse (82) zum Abstützen des beweglichen Gehäuses (90) erstreckt;

wobei die Steuermittel (28, 94) aufweisen:

erste Prozessormittel (95), die in dem beweglichen Gehäuse (90) zum Erfassen der von dem Feld (24) erzeugten Auswahlssignale angeordnet sind;

zweite Prozessormittel (104), die in dem feststehenden Gehäuse (82) zum Steuern des Terminals angeordnet sind, um die Operationen in Antwort auf die von den ersten Prozessormitteln (95) erfaßten Auswahlssignale durchzuführen; und

elektrische Verbindungsmittel (106), die sich durch den Schwenkarm (92) erstrecken und die ersten und die zweiten Prozessormittel (95, 104) verbinden.

17. System nach Anspruch 16, dadurch gekennzeichnet, daß:

die Prompt-Erzeugungsmittel (30) in jedem entfernt liegenden Terminal Mittel zum Erzeugen der Prompts aufweisen, derart, daß die Prompts Gegenständen entsprechen, die auswählbar angefordert werden können; und die Daten-Erzeugungsmittel (42, 95) in jedem entfernt liegenden Terminal Mittel zum Erzeugen der Datensignale aufweisen, derart, daß diese den angeforderten Gegenständen entsprechen.

18. System nach Anspruch 17, dadurch gekennzeichnet, daß:

das Videoterminal (14, 80) in jedem entfernt liegenden Terminal weiterhin Kartenlesermittel (36) in dem beweglichen Gehäuse (90) zum Lesen von Kartendaten von einer Karte aufweist, die in die Kartenlesermittel (36) zur Bezahlung der angeforderten Gegenstände eingeführt ist; die Prompt-Erzeugungsmittel (30) in jedem entfernt liegenden Terminal Mittel zum Erzeugen eines Prompts aufweisen, der das Einführen der Karte in die Kartenlesermittel (36) anweist; und die Kommunikationsmittel (44) in jedem entfernt liegenden Terminal Mittel zum Übertragen der Kartendaten zusammen mit den Datensignalen entsprechend den jeweiligen der angeforderten Gegenstände an die zentralen Terminalmittel (12) aufweisen.

19. System nach einem der Ansprüche 16 - 18, dadurch gekennzeichnet, daß:

die zentralen Terminalmittel (12) weiterhin Mittel (12a) zum Erzeugen eines gemultiplexten Videosignals mit einer Vielzahl von Videokanä-

len aufweisen;

jedes entfernt liegende Videoterminal (14, 80) Tuner-Mittel (32) in dem feststehenden Gehäuse (82) zum Empfangen des gemultiplexten Videosignals und zum Abstimmen auf einen ausgewählten Kanal zur Anzeige auf dem Schirm (22) aufweist;

die Prompt-Erzeugungsmittel (30) in jedem entfernt liegenden Terminal Mittel zum Erzeugen vorbestimmter Prompts entsprechend den Kanälen zur Anzeige auf dem Schirm (22) aufweisen, und zwar in einer Lage unterhalb jeweiliger vorbestimmter druckempfindlicher Bereiche (F/C) des Feldes (24); und

die Steuermittel (28, 94) in jedem entfernt liegenden Terminal Mittel zum Steuern des jeweiligen Terminals (14, 80) aufweisen, um die Anzeige der Prompts zu beenden und den ausgewählten Kanal von den jeweiligen Tuner-Mitteln (32) auf dem jeweiligen Schirm (22) in Antwort auf ein Auswahlssignal anzuzeigen, das von dem jeweiligen Feld (24) entsprechend dem ausgewählten Kanal erzeugt wird.

20. System nach einem der Ansprüche 16 - 19, dadurch gekennzeichnet, daß:

das Videoterminal (14, 80) in jedem entfernt liegenden Terminal weiterhin Videoabspielmittel (86) in dem feststehenden Gehäuse (82) zum Erzeugen von Videoprogrammsignalen entsprechend einem auf einem Video-Aufzeichnungsmedium (88) aufgezeichneten Programm zur Anzeige auf dem Schirm (22) aufweist, wobei

die Berechnungsmittel (30) in jedem entfernt liegenden Terminal weiterhin Mittel zum Erzeugen vorbestimmter Prompts entsprechend auswählbaren Operationen der jeweiligen Videoabspielmittel (86) zur Anzeige auf dem jeweiligen Schirm (22) aufweisen, und zwar in einer Lage unterhalb vorbestimmter druckempfindlicher Bereiche (F/C) des jeweiligen Feldes (24); und

die Steuermittel (28, 94) in jedem entfernt liegenden Terminal die jeweiligen Videoabspielmittel (86) steuern, um die Operationen in Antwort auf jeweilige der Auswahlssignale durchzuführen, die diesen entsprechen.

21. System nach Anspruch 20, dadurch gekennzeichnet, daß:

die Berechnungsmittel (30) in jedem entfernt liegenden Terminal weiterhin Mittel zum Erzeugen vorbestimmter Prompts entsprechend den jeweiligen Tuner-Mitteln (32) und den jeweiligen Videoabspielmitteln (86) zur Anzeige auf

dem jeweiligen Schirm (22) aufweisen, und zwar in einer Lage unterhalb vorbestimmter druckempfindlicher Bereiche (R/C) des jeweiligen Feldes (24); und
 die Steuermittel (28, 94) in jedem entfernt liegenden Terminal Mittel (114) zum Steuern des jeweiligen Terminals aufweisen, um einen ausgewählten Kanal von den jeweiligen Tuner-Mitteln (32) oder die Programmsignale von den jeweiligen Videoabspielmitteln (86) in Antwort auf jeweilige der Auswahlssignale anzuzeigen, die diesen entsprechen.

Revendications

1. Terminal vidéo interactif comportant :

un écran d'affichage vidéo (22)
 un panneau de commande (24) comportant une pluralité de touches de commande pour générer des signaux de sélection électriques discrets respectifs lorsqu'on l'utilise ;
 un moyen de commande (28,94) réagissant auxdits signaux de sélection provenant du panneau (24) pour commander le terminal (14, 80) afin d'exécuter des opérations sélectionnables préétablies respectives,

caractérisé par

le panneau de commande constitué par un panneau tactile (24) transparent recouvrant l'écran (22) et disposant d'une pluralité de zones piézosensibles (R/C) pour générer lesdits signaux de sélection électriques discrets respectifs quand on les touche ;
 un moyen de calcul (30) pour générer des messages visuels respectifs correspondant auxdites opérations sélectionnables préétablies du terminal (14, 80) pour les afficher sur l'écran (22) placé sous les zones piézosensibles préétablies (R/C) du panneau (24) ;
 un boîtier amovible (90) pour loger ledit écran (22) et ledit panneau (24) ;
 un boîtier fixe (82) logeant ledit moyen de calcul (30) ;
 un bras articulé orientable (92) sortant du boîtier fixe (82) et portant le boîtier amovible (90) ;
 dans lequel le moyen de commande (28, 94) comprend :
 un premier moyen processeur (95) disposé dans le boîtier amovible (90) pour détecter lesdits signaux de sélection générés par le panneau (24) ;
 un second moyen processeur (104) disposé dans le boîtier fixe (82) pour commander le terminal afin qu'il effectue lesdites opérations en

réponse auxdits signaux de sélection détectés par le premier moyen processeur (95) et un moyen connecteur électrique (106) traversant le bras articulé (92) et interconnectant le premier et le second moyen processeur (95, 104).

2. Terminal selon la revendication 1, caractérisé en ce que :

le moyen de calcul (30) comporte un moyen (30) pour générer lesdits messages sous forme d'une structure de menu multiniveau ;
 le moyen de commande (28, 94) comporte un moyen (75) pour commander le terminal (14,80) afin qu'il effectue lesdites opérations en réponse à des combinaisons respectives d'un niveau de menu sélectionné et desdits signaux de sélection.

3. Terminal selon la revendication 1 ou la revendication 2, caractérisé par un moyen d'accord (32) implanté dans ledit boîtier fixe (82) pour recevoir un signal vidéo multiplexé comprenant une pluralité de canaux vidéo et pour s'accorder sur une canal sélectionné pour affichage sur l'écran, dans lequel

le moyen de calcul (30) comprend un moyen (30) pour générer des messages préétablis correspondant auxdits canaux pour affichage sur l'écran placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24) ; et
 le moyen de commande (28, 94) comprend un moyen (75) pour commander le terminal afin qu'il cesse d'afficher lesdits messages et affiche ledit canal sélectionné dans le moyen d'accord (32) sur l'écran (22) en réponse à un signal de sélection généré par le panneau (24) correspondant audit canal sélectionné.

4. Terminal selon l'une quelconque des revendications 1 à 3, caractérisé par un moyen lecteur vidéo (86) implanté dans ledit boîtier fixe pour générer des signaux de programme vidéo correspondant à un programme enregistré sur un support de stockage vidéo (88) pour affichage sur l'écran (22), dans lequel

le moyen de calcul (30) comprend, en outre, un moyen pour générer des messages préétablis correspondant à des opérations sélectionnables du moyen de lecture vidéo (86) pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau 24; et
 le second moyen processeur (104) commande le moyen lecteur vidéo (86) pour effectuer les-

dites opérations en réponse auxdits signaux de sélection respectifs correspondants.

5. Terminal selon les revendications 3 et 4, caractérisé en ce que :

le moyen de calcul (30) comprend, en outre, un moyen pour générer des messages préétablis correspondant au moyen d'accord (32) et le moyen lecteur vidéo (86) pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24) ; et

le second moyen processeur (104) comprend un moyen (75, 114) pour commander le terminal (22) pour afficher un canal sélectionné dans le moyen d'accord (32) ou les signaux de programme provenant du moyen lecteur vidéo (86) en réponse auxdits signaux de sélection respectifs correspondants.

6. Terminal selon l'une quelconque des revendications 1 à 5, caractérisé par un moyen de communication (44) implanté dans ledit boîtier fixe pour transmettre les signaux de données provenant du terminal (14, 80), dans lequel

le moyen de calcul (30) comprend :

un moyen générateur de messages (30) pour générer des messages préétablis correspondant à des signaux de données sélectionnables pour transmission extérieure et affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24) ; et

un moyen générateur de données (42, 95) pour générer lesdits signaux de données ; et le moyen de commande (28, 94) comprend un moyen (73) pour commander le moyen de communication (44) pour transmettre lesdits signaux de données en réponse auxdits signaux de sélection respectifs correspondants ;

7. Terminal selon la revendication 6, caractérisé en ce que :

le moyen générateur de messages (30) comprend un moyen (30) pour générer lesdits messages correspondant à des éléments qui peuvent être demandés sélectivement ; et le moyen générateur de données (42, 95) comprend un moyen pour générer lesdits signaux de données correspondant auxdits éléments demandés.

8. Terminal selon la revendication 7, caractérisé par un moyen lecteur de carte implanté dans ledit boîtier amovible (90) pour lire les données contenues

dans une carte insérée dans ledit lecteur dans le but de payer lesdits éléments demandés, dans lequel

le moyen générateur de messages (30) comprend un moyen pour générer un message demandant l'insertion de la carte dans le moyen lecteur de carte (36) ; et

le moyen de communication (44) comprend un moyen pour transmettre lesdites données sur carte avec les signaux de données correspondant auxdits éléments demandés.

9. Terminal selon l'une quelconque des revendications 1 à 8, caractérisé par un moyen émetteur-récepteur téléphonique implanté dans ledit boîtier fixe (82), dans lequel

le moyen de calcul (30) comprend, en outre, un moyen pour générer des messages préétablis correspondant à des opérations sélectionnables sur l'émetteur-récepteur téléphonique (38) pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24) ; et le moyen de commande (28, 94) comprend un moyen pour commander le moyen émetteur-récepteur téléphonique (38) pour effectuer lesdites opérations en réponse auxdits signaux de sélection respectifs correspondants.

10. Terminal selon l'une quelconque des revendications 1 à 9, caractérisé en ce que le boîtier fixe (82) comporte une alvéole (82a), le boîtier amovible (90) et le bras articulé (92) étant mobiles entre une position de vision, à l'extérieur du boîtier fixe (82), et une position rentrée, à l'intérieur de l'alvéole (82a) du boîtier fixe (82).

11. Terminal selon l'une quelconque des revendications 1 à 10, caractérisé en ce que le moyen de calcul (30) comprend un moyen générateur de caractères (30) implanté dans le boîtier fixe (82) et commandé par le second moyen processeur (104).

12. Terminal selon la revendication 11, caractérisé par un moyen d'accord (32) implanté dans le boîtier fixe (82) pour recevoir un signal vidéo multiplexé incluant une pluralité de canaux vidéo et s'accorder sur un canal sélectionné pour affichage sur l'écran (22) dans lequel

le moyen de calcul (30) comprend un moyen générateur de caractères (30) pour générer des messages préétablis correspondant auxdits canaux pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24) ; et

le second moyen processeur (104) comprend un moyen pour commander le terminal pour qu'il cesse d'afficher lesdits messages et affiche ledit canal sélectionné dans le moyen d'accord (32) sur l'écran (22) en réponse à un signal de sélection généré par le panneau (24) correspondant audit canal sélectionné.

13. Terminal selon l'une quelconque des revendications 1 à 3 ou 5 à 12, lorsqu'elle ne dépend pas de la revendication 4, caractérisé par un moyen lecteur vidéo (86) implanté dans le boîtier fixe (82) pour générer des signaux de programme vidéo correspondant à un programme enregistré sur un support de stockage vidéo (88) pour afficher sur l'écran (22), dans lequel:

le moyen de calcul (30) comprend, en outre, un moyen générateur de caractères pour générer des messages préétablis correspondant à des opérations sélectionnables du moyen lecteur vidéo (86) pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24); et le second moyen processeur (104) comprend un moyen pour commander le moyen lecteur vidéo (86) pour effectuer lesdites opérations en réponse auxdits signaux de sélection respectifs correspondants.

14. Terminal selon la revendication 13, caractérisé en ce que :

le moyen générateur de caractères (30) comprend, en outre, un moyen pour générer des messages préétablis correspondant au moyen d'accord (32) et le moyen lecteur vidéo (86) pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies respectives (R/C) du panneau (24); et le second moyen processeur (104) comprend un moyen (114) pour commander le terminal pour afficher un canal sélectionné dans le moyen d'accord (32) ou les signaux de programme provenant du moyen lecteur vidéo (86) en réponse auxdits signaux de sélection respectifs correspondants.

15. Terminal selon l'une quelconque des revendications 1 à 14, caractérisé en ce que :

le moyen générateur de caractères (30) comprend un moyen pour générer des messages correspondant aux éléments qui peuvent être demandés sélectivement ; le second moyen processeur (104) comprend un moyen pour générer des signaux de données correspondant auxdits éléments deman-

dés, le terminal (80) comprend, en outre, un moyen lecteur de carte (36) implanté dans le boîtier amovible (90) pour lire les données contenues dans la carte insérée dans le lecteur pour le paiement desdits éléments demandés ; le moyen générateur de caractères (30) comprend, en outre, un moyen pour générer un message demandant l'insertion de la carte dans le moyen lecteur de carte (36); et le premier moyen processeur (95) comprend un moyen pour recevoir lesdites données de la carte lues par le moyen lecteur de carte (36) en réponse à l'insertion de la carte dans le lecteur.

16. Système interactif de gestion de données (10) destiné à un véhicule comportant une pluralité de sièges, comprenant :

une pluralité de terminaux vidéo à distance (14, 80, montés au niveau des sièges respectifs, chacun de ces terminaux vidéo (14,80) comportant : un écran d'affichage vidéo (22), un panneau de commande (24) comportant une pluralité de touches de commande pour générer des signaux de sélection électriques discrets respectifs lorsqu'on les commande ; un moyen de communication (44) pour transmettre des signaux de données provenant du terminal (14, 80); un moyen de commande (28, 94) réagissant auxdits signaux de sélection provenant du panneau (24) pour commander le moyen de communication (44) pour transmettre lesdits signaux de données respectifs correspondants ; et

un moyen de terminal central (12) comprenant :

un moyen de communication (12b) pour recevoir lesdits signaux de données provenant des terminaux (14, 80); et un moyen de traitement (12a, 12c) pour effectuer les opérations sur les signaux de données reçus,

caractérisé par la présence, dans les terminaux à distance,

d'un panneau de commande constitué par un panneau tactile transparent (24) recouvrant l'écran (22) et comportant une pluralité de zones piézosensibles (R/C) pour générer lesdits signaux de sélection électriques discrets respectifs lorsqu'on les touche ; un moyen de calcul (30) comprenant un moyen

générateur de messages pour générer des messages visuels préétablis correspondant auxdits signaux de données pour affichage sur l'écran (22) placé sous les zones piézosensibles préétablies (R/C du panneau (24) et un moyen générateur de données (42, 95) pour générer lesdits signaux de données respectifs ; un boîtier amovible (90) pour protéger l'écran (22) et le panneau (24) ; un boîtier fixe (82) protégeant ledit moyen de calcul (30) ; un bras articulé orientable (92) sortant du boîtier fixe (82) et maintenant le boîtier amovible (90) ;

dans lequel le moyen de commande (28,94) comprend :

un premier moyen processeur (95) implanté dans le boîtier amovible (90) pour détecter lesdits signaux de sélection générés par le panneau (24) ; un second moyen processeur (104) implanté dans le boîtier fixe (82) pour commander le terminal pour effectuer lesdites opérations en réponse auxdits signaux de sélection détectés par le premier moyen processeur (95) ; et un moyen connecteur électrique (106) sortant du bras articulé (92) et interconnectant le premier et le second moyen processeur (95, 104).

17. Système selon la revendication 16, caractérisé en ce que :

ledit moyen générateur de messages (30) implanté dans chaque terminal à distance comprend un moyen pour générer lesdits messages correspondant aux éléments qui peuvent être demandés sélectivement ; et ledit moyen générateur de données (42, 95), implanté dans chaque terminal à distance, comprend un moyen pour générer lesdits signaux de données correspondant auxdits éléments demandés.

18. Système selon la revendication 17, caractérisé en ce que :

ledit terminal vidéo (14,80), implanté dans chaque terminal à distance, comprend, en outre, un moyen lecteur de carte (36) implanté dans ledit boîtier amovible (90) pour lire les données contenues dans la carte insérée pour le paiement desdits éléments demandés ; ledit moyen générateur de messages (30), implanté dans chaque terminal à distance, comprend un moyen pour générer un message demandant l'insertion de la carte dans le moyen

lecteur de carte (36) ; et ledit moyen de communication (44), placé dans chaque terminal à distance, comprend un moyen pour transmettre au moyen de terminal central (12) lesdites données de la carte avec lesdits signaux de données correspondant auxdits éléments respectifs demandés.

19. Système selon l'une quelconque des revendications 16 à 18, caractérisé en ce que :

le moyen de terminal central (12) comprend, en outre, un moyen (12a) pour générer un signal vidéo multiplexé incluant une pluralité de canaux vidéo ; chaque terminal vidéo à distance (14, 80) inclut un moyen d'accord (32), implanté dans ledit boîtier fixe (82), pour recevoir le signal vidéo multiplexé et s'accorder sur un canal sélectionné pour affichage sur l'écran (22) ; ledit moyen générateur de messages (30), implanté dans chaque terminal à distance, comprend un moyen pour générer des messages préétablis correspondant auxdits canaux pour affichage sur l'écran (22) placé sous les zones piézosensibles prédéterminées respectives (R/C) du panneau (24) ; et le moyen de commande (28, 94), implanté dans chaque terminal à distance, comprend un moyen pour commander le terminal respectif (14, 80) pour qu'il cesse d'afficher lesdits messages et affiche ledit canal sélectionné dans le moyen d'accord respectif (32) de l'écran respectif (22) en réponse à un signal de sélection généré par le panneau respectif (24) correspondant audit canal sélectionné.

20. Système selon l'une quelconque des revendications 16 à 19, caractérisé en ce que :

ledit terminal vidéo (14, 80), implanté dans chaque terminal à distance, comprend, en outre, un moyen lecteur vidéo (86), implanté dans ledit boîtier fixe, pour générer des signaux de programme vidéo correspondant à un programme enregistré sur un support de stockage vidéo (88) pour affichage sur l'écran (22), dans lequel ledit moyen de calcul (30), implanté dans chaque terminal à distance, comprend, en outre, un moyen pour générer des messages préétablis correspondant aux opérations sélectionnables du moyen lecteur vidéo respectif (86) pour affichage sur l'écran respectif (22) placé sous des zones piézosensibles préétablies (R/C) du panneau respectif (24) ; et ledit moyen de commande (28, 94) implanté dans chaque terminal à distance, commande

le moyen lecteur vidéo respectif (86) pour effectuer lesdites opérations en réponse auxdits signaux de sélection respectifs correspondants.

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21. Système selon la revendication 20, caractérisé en ce que :

ledit moyen de calcul (30), implanté dans chaque terminal à distance, comprend, en outre, un moyen pour générer des messages préétablis correspondant au moyen d'accord respectif (32) et le moyen lecteur vidéo respectif (86) pour afficher sur l'écran respectif (22) placé sous les zones piézosensibles respectives préétablies (R/C) du panneau respectif (24) ; et ledit moyen de commande (28, 94), implanté dans chaque terminal à distance, comprend un moyen (114) pour commander le terminal respectif pour afficher un canal sélectionné du moyen d'accord respectif (32) ou les signaux de programme provenant du moyen lecteur vidéo respectif (86) en réponse auxdits signaux de sélection respectifs correspondants.

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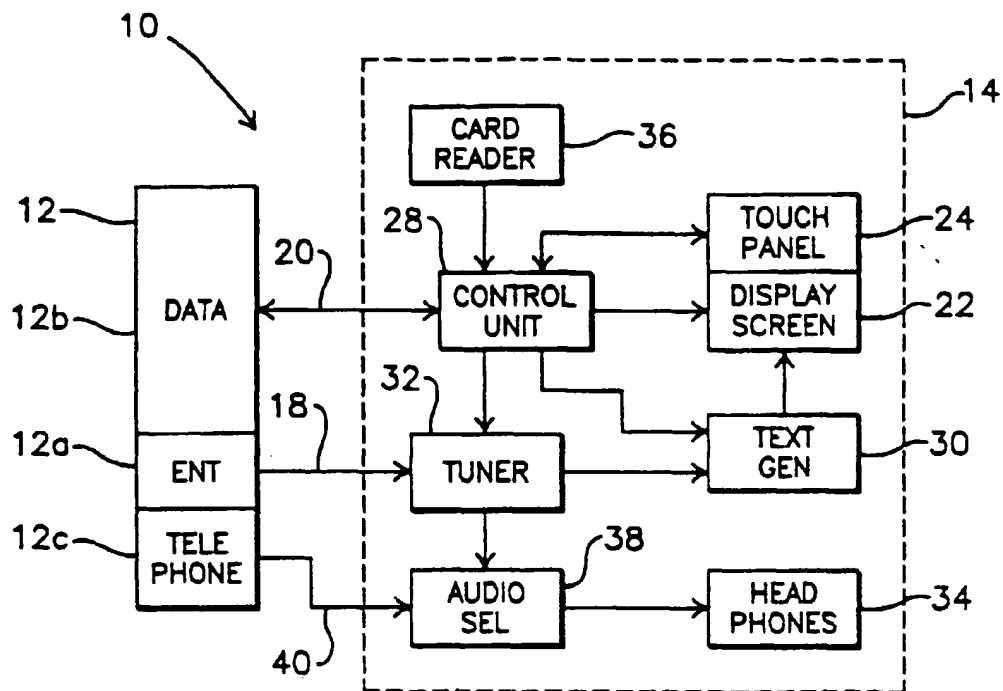


Fig.1

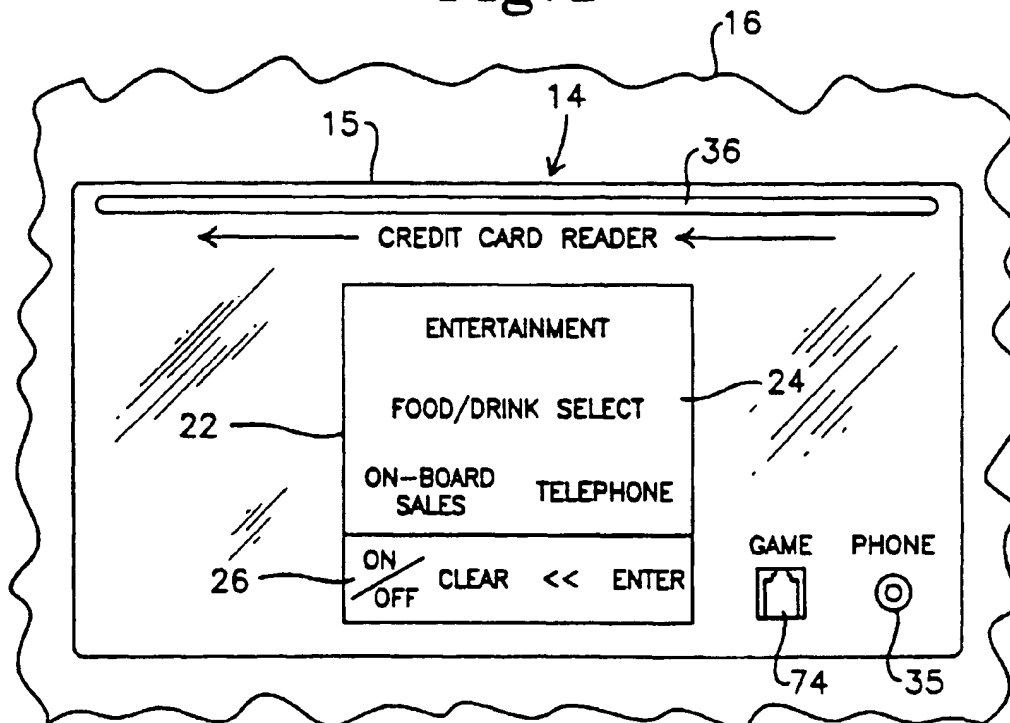


Fig.2

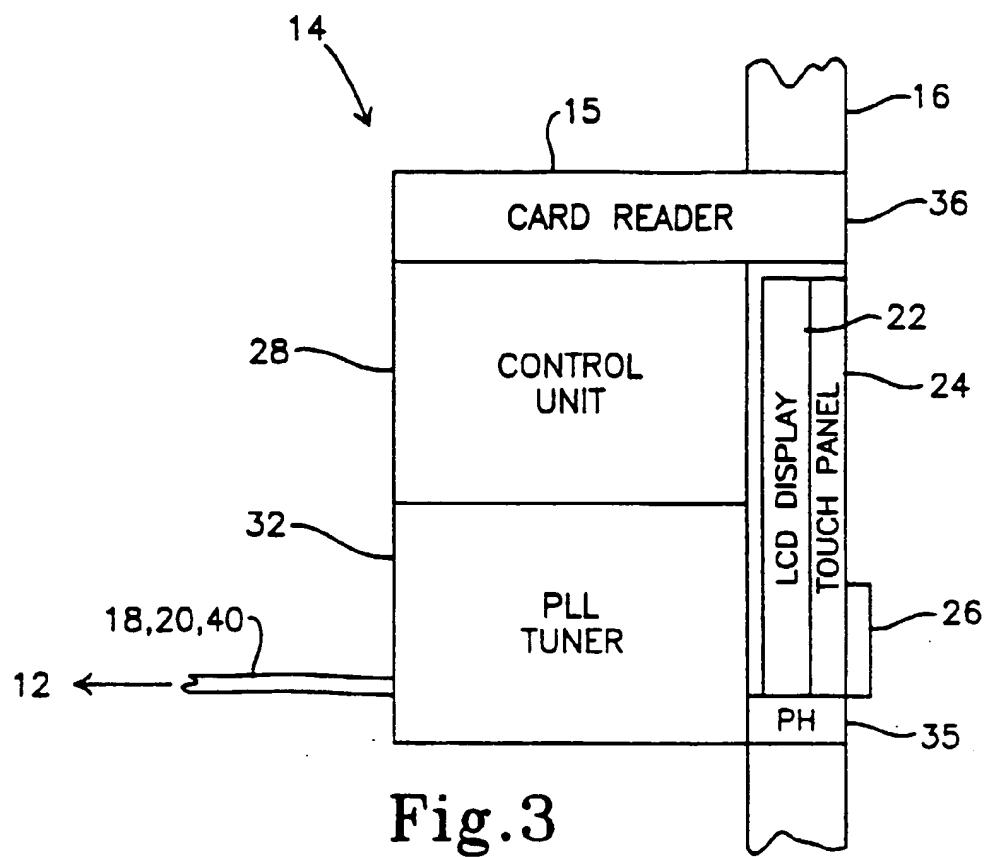


Fig.3

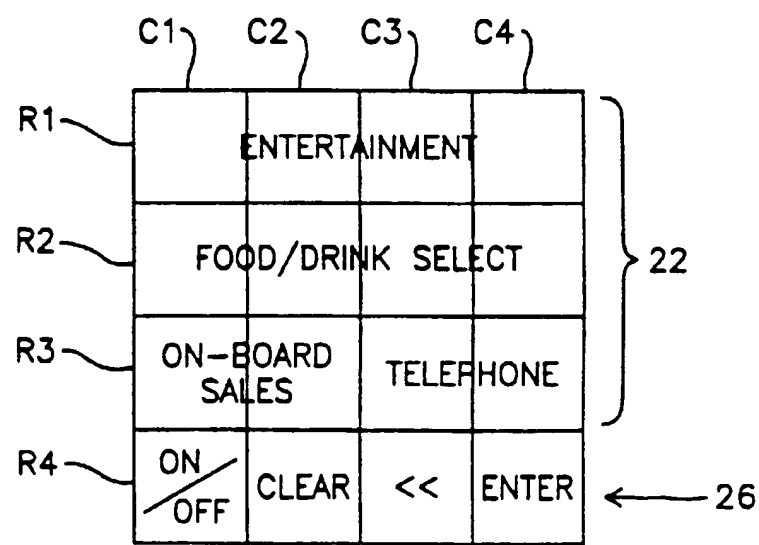


Fig.4

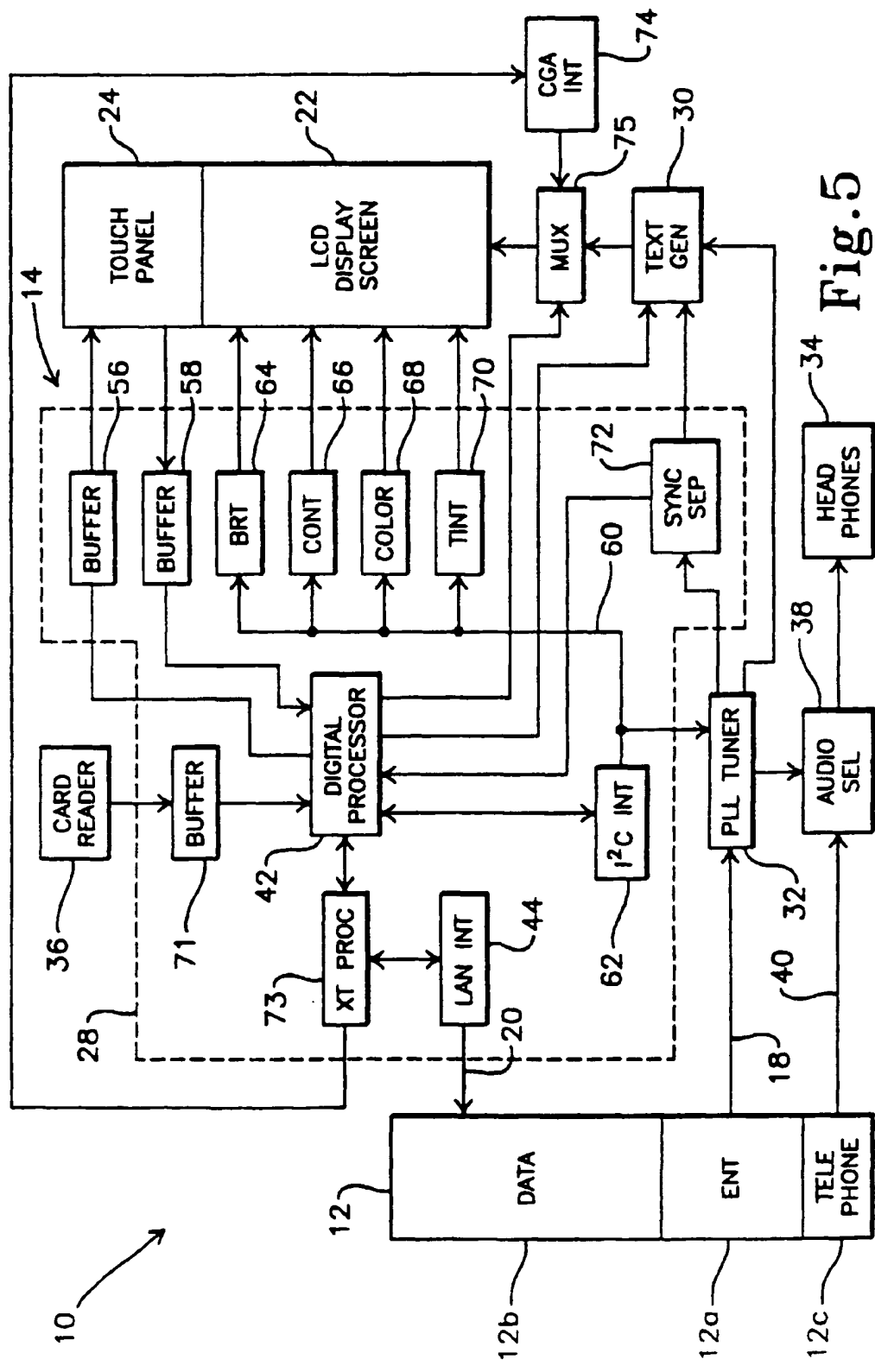


Fig.5

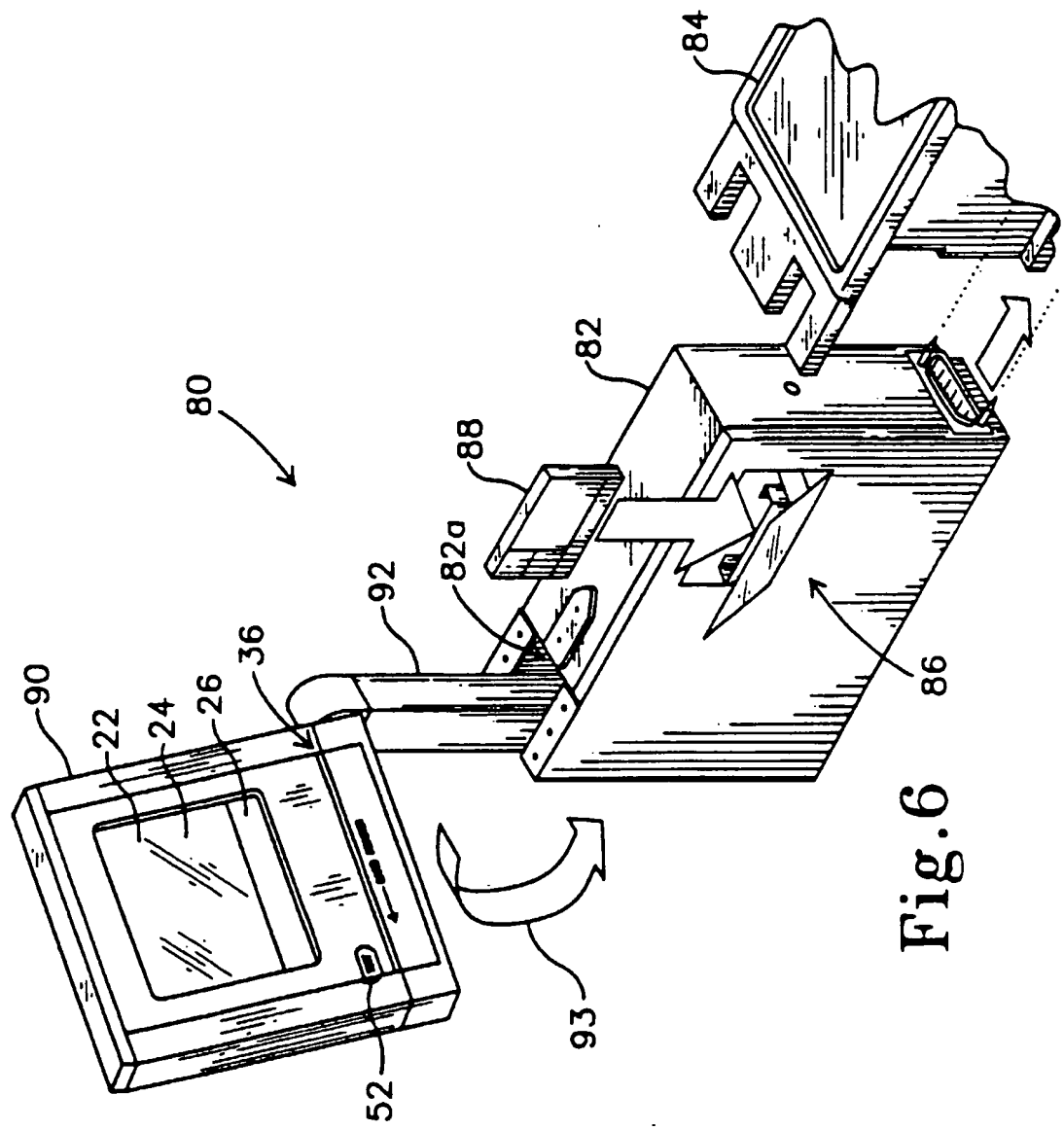


Fig. 6

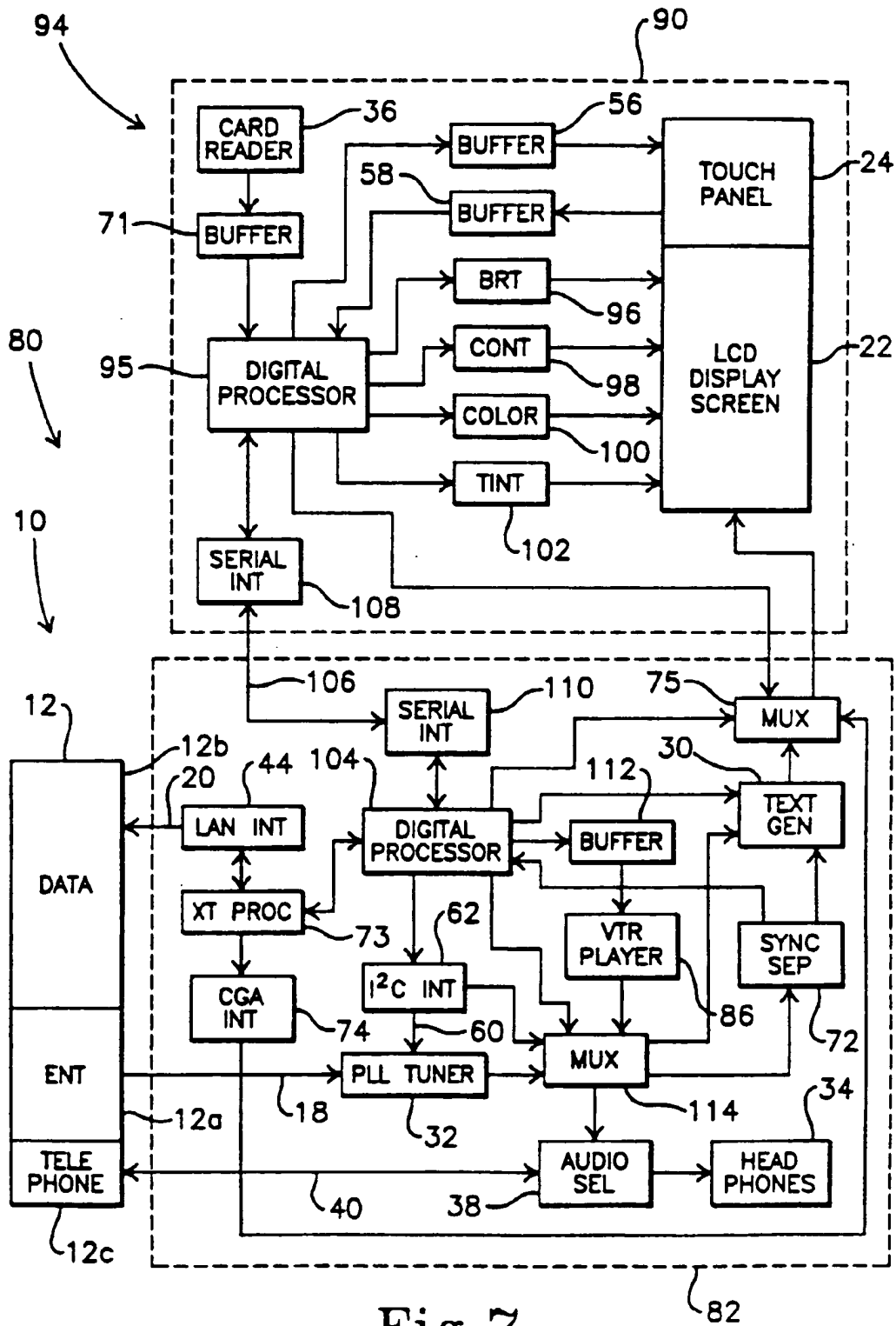


Fig. 7